ACUTE RETENTION OF URINE

Key Concepts

• Etiology of Urinary Retention
• Differential diagnosis of Urinary Retention
• Investigation of Urinary Retention
• Management of Urinary Retention
• Method of Urethral catheterization

Abstract

Acute urinary retention of urine is painful inability to pass urine. It is a common condition and occurs almost exclusively in males, but may occur in females as well. Acute urinary retention caused by neurological lesions, bladder lesions, bladder neck lesion, Urethral lesion and drugs. The initial step in management is to establish the diagnosis of retention and assess for any complications. The objective of meatiest in immediate terms is to drain the urine by urethral catheterization. This is followed by definitive management of the cause.

Key words: Acute urinary retention, Enlarged prostate, Vesical calculus, Structure urethra.

ETIOLOGY

Acute retention of urine is painful inability to pass urine. It is sudden in onset. However symptoms of incomplete urinary evacuation may be present for a long time. It is a common condition and occurs almost exclusively in males, but may occur in females as well.

The most important fact to be established is whether the patient is suffering from acute retention or anuria. A palpable bladder rising out of the pelvis settles the issue.

Urethral catheter is passed to confirm that the palpable mass is distended bladder and no other lesion.

CAUSES (COMMON)

• Postoperative retention of urine.
• Prostatic hypertrophy.
• Carcinoma of prostate.
• Postprostatectomy clot retention.
• Urethral stricture.

The acute retention of urine can also be caused by:
NEUROLOGICAL CAUSES
Interference with the nervous mechanism of the bladder.
- Fracture dislocation of the spine.
- Pott’s paraplegia.
- Tabes dorsalis.
- Sub acute combined degeneration of the cord.
- Disseminated sclerosis.
- Syringomyelia.
- Pelvic nerve damage at pelvic operations.
- Tumours of cerebral cortex, spinal cord, meninges and vertebral column.
- Hysteria.

BLADDER LESIONS
- Blood clot.
- Carcinoma.
- Papilloma.
- Calculus.

BLADDER NECK LESIONS
- Prostatic hypertrophy.
- Carcinoma of prostate.
- Prostatitis.
- Prostatic abscess.
- Fibrous prostate.
- Fibro muscular hyperplasia (Marian's disease).

POSTERIOR URETHRA
- Congenital urethral valves.
- Strictures such as;
- Traumatic.
- Inflammatory.
- Neoplastic
- Urethral stone.
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MEMBRANOUS, BULBOUS AND PENILE URETHRA
- Strictures.
- Traumatic.
- Inflammatory.
- Neoplastic.
- Urethritis.
- Urethral stone.
- Periurethral abscess.

MISCELLANEOUS LESIONS
- Phimosis.
- Paraphimosis.
- Retroverted gravid uterus.
- Haematoccolpos.
- Leiomyoma of broadligament.
- Appendiceal abscess.
- Herpes Zoster.

Viral infection with herpes zoster presents with acute retention. The inflammatory reaction involves spinal cord and anterior horn cells causing cystitis like syndrome and acute retention.

- Elsberg syndrome.
Acute urinary retention after viral infection is known as Elsberg syndrome. The urinary retention occurs as result of sacral myeloradiculitis. There may be hyperesthesia in the sacral dermatomes. There is tendency towards spontaneous recovery within four to ten days.

- Lymphocytic leukemia.
The acute retention in these patients occurs due to leukemic infiltration of the prostate causing outlet obstruction.

DIFFERENTIAL DIAGNOSIS
Once it is confirmed that patient is suffering from acute retention, then the differential diagnosis is between different causes of acute retention such as:
- Enlarged prostate.
- Carcinoma prostate.
- Bladder neck obstruction.
- Post operative acute retention.
- Bladder stone.
- Bladder tumour.
- Constipation.
- Stricture urethra.
- Disc lesion.
- Spinal cord tumours.
- Spinal cord injuries.
- Blocked catheter in already catheterized patient.
- Drugs.

ENLARGED PROSTATE
This is the most common cause of acute retention in old males. History is very suggestive of the problem. The history of hesitancy, urgency, frequency, nocturia and slow stream is present. Examination specially rectal examination is helpful in the diagnosis. Size of the prostate can be assessed by rectal examination. Further investigations are required for accurate assessment of the size, nature of prostatic enlargement and degree of obstruction.

BLADDER NECK OBSTRUCTION
This presents with similar symptoms. Rectal examination reveals normal size prostate. Ultrasound scan helps to diagnose the condition. Cystoscopic examination confirms the diagnosis.

STRUCTURE URETHRA
History of previous injury, urethral instrumentation and urethral infection is suggestive of stricture. History of difficulty
in micturition, slow stream and feeling of incomplete evacuation are the common associated features. Urethrogram or urethroscopy will help to confirm the diagnosis.

**BLADDER STONE**
Occasionally this may also be one of the causes of acute retention. The stone blocks the bladder neck. Symptoms of cystitis, haematuria and intermittent retention are suggestive of the diagnosis. Ultrasound scan, radiological investigations and cystoscopic examination confirm the diagnosis.

**STONE URETHRA**
Rarely urethral stone also causes acute retention of urine.

**CARCINOMA PROSTATE**
This is less common condition than benign enlargement of the prostate. Symptoms are almost similar to those of enlarged prostate. There is loss of weight and pains and aches may be present due to secondaries.

Diagnosis is confirmed by rectal examination, serum acid phosphatase estimation, prostatic specific antigen estimation and prostatic biopsy.

**CONSTIPATION**
Many times constipation is the cause of acute retention. History and examination settles the diagnosis. Enemas will clear the constipation and relieve the retention.

**BLADDER TUMOUR**
This is also one of the common causes of acute retention. Haematuria, loss of weight, anorexia, weakness, anaemia and
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symptoms of urinary outflow obstruction are common features. Ultrasound scan, Excretory urogram, cystoscopy and bimanual examination help in the diagnosis. Biopsy confirms the diagnosis.

BLOCKED CATHETER (IN CATHETERIZED PATIENT)
This occurs as clot retention is post operative cases and due to debris blocking the catheter in patients with indwelling catheters over longer periods. Palpable bladder is suggestive of diagnosis. A change of catheter helps in the diagnosis and the treatment of such retention.

POST OPERATIVE
Acute retention is quite common after operations on perineal region. This is more common in male patients. History is suggestive. Treatment should be performed on its merits.

DISC LESION
History of injury to the back with symptoms similar to lumbago and sciatica is present. Clinical examination, radiological investigations and MRI scan of the vertebral column help in confirmation of the diagnosis and planning of management. Retention of urine developing in less than 48 hours after acute disc prolapse is associated with poorer prognosis.

SPINAL CORD TUMOURS
Symptoms of spinal cord compression and spinal cord injuries are associated with acute retention of the urine. Clinical examination, CT, MRI Scanning help in confirmation of the diagnosis.

DRUGS
Antiarrhythmic drug such as flecainide can lead to acute retention probably due to its local anaesthetic effect on bladder.

TREATMENT
The objectives of treatment are:
- Relief of retention.
- Treatment of the cause of acute retention.

These are achieved by:
- Treatment of acute retention (immediate).
- Treatment of cause of retention (definitive).

RELIEF OF RETENTION
The patient should be admitted into the hospital immediately in case he is not already in the hospital. There is no need for catheterization in a rush without observing proper aseptic precautions at a proper place. The patient should now be examined thoroughly and should be given adequate analgesia. Once the patient is out of agony and relaxed, he is put into warm bath in cold weather and cold bath in hot weather. The patient is encouraged to pass urine from

Urethrogram

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relaxation thus provided and this is further helped by the sound of falling water from the open tap. If these simple measures do not help, then the patient should be put in the bed and arrangements should be made for catheterization.

**URETHRAL CATHETERIZATION PREPARATION**

It is always done under proper aseptic conditions. At first, the correct size catheter is chosen (smaller than the urethral diameter).

A septic and antiseptic preparation is done such as;
- Scrubbing up of surgeon.
- Putting on the sterilized gloves.
- Cleaning the external genitalia and surrounding skin with antiseptic solution.
- Arranging the towels around the penis.
- Urethra should be lubricated and anaesthetized.

**CHOOSING THE CATHETER**

When the cause of acute retention is transient as post operative surgical patient or hysteric, smaller rubber or plastic catheter can be introduced to let the urine out. When the cause is prostatic hypertrophy or other organic causes and catheterization has to be indwelling, a small size foley’s catheter (size 10, 12, 14, 16, fr) is used. When the urinary retention has occurred after prostatectomy due to clot formation in the bladder, large size three way catheter (size 24, 26, 28, fr) is introduced and clots are sucked out of the bladder.

**PROCEDURE**

Catheter is introduced gently and aseptically with minimum handling. After aseptic introduction of the catheter, when the urine starts running out, the balloon of the catheter is filled with 5-10 mls of sterile water and the catheter is connected to the bag.

If the catheter doesn’t get into the bladder with gentle introduction, a smaller size catheter may be tried but in case of failure, transurethral introduction should be abandoned.

**SUPRAPUBIC CATHETERIZATION**

Suprapubic puncture of the bladder and introduction of a tube catheter can be done and the bladder is drained. Suprapubic catheterization is a preferred initial treatment of acute retention. It avoids complications like urinary tract infection and urethral stricture formation.

**TREATMENT OF CAUSE OF ACUTE RETENTION**

Treatment of the cause of acute retention will be the definitive treatment of the
disease.

Post operative acute retention can be relieved by simple methods such as analgesia, sedation and warm bath. In case of failure of these methods, catheterization for few days is helpful. Disc lesion, spinal cord tumours and injuries should be treated on their merits.

If cause of the retention is clot retention or blocked catheter, bladder washout and evacuation of the clots either with evacuator or through supra pubic route should be performed. The catheter may be changed as well.

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In cases with enlarged prostate, small urethral catheter is passed under aseptic conditions and bladder is drained.

Definitive treatment is prostatectomy after preparing the patient adequately.

In carcinoma of the prostate, drainage of bladder is performed either urethrally or through supra pubic-route. Transurethral resection is performed to get the biopsy and to relief the urinary outlet obstruction. The hormonal treatment is given (stillboesterol 5-10 mg thrice daily or Honvan tablets three times daily). Androcar tablets are also used as hormonal treatment. It is successful then bilateral orchiectomy is performed or antiandogenic hormones are given. Radical prostatectomy may be required.

Bladder neck obstruction is treated by transurethral resection of bladder neck.

Bladder tumours require treatment according to the stage of the disease. Bladder drainage is performed per urethra.

Bladder stone is removed through suprapubic route or transurethrally depending upon the size and type of stone and age of the patient.

Stricture urethra requires internal or external urethrotomy or urethroplasty.

REFERENCES